Undergraduate Panel

Continuing Your Math Journey in College

Explore math in college and how to get involved, from continuing your interests in competitions to discovering applications in statistics, machine learning, quantitative finance, and beyond.



Ishaan Vohra

Ishaan is a junior at MIT majoring in Artificial Intelligence (6-4) and a researcher at CSAIL. His research lies at the intersection of robotics and machine learning, focusing on VLA fine-tuning in simulation and video world models. He also co-leads the MIT Undergraduate Robotics Reading Group. Outside robotics, he enjoys producing electronic music, playing racket sports, and skiing.



Connor Hill

Connor is a freshman studying math at MIT. In high school, he discovered a way to identify all possible "noble polyhedra," highly symmetric shapes with flat sides and straight edges, winning recognition from the Regeneron STS competition. Outside of math, he enjoys nature and is part of MIT's Outing Club.



Lillian MacArthur

Lillian is a junior studying math at Harvard. In her time in college, she has conducted math research through the NYC Discrete Math and TADM REUs, worked as a course assistant for three math courses, and also taught math through her role as a mentor for MIT Primes Circle.



Jesse Brodtman

Jesse is a junior at Harvard concentrating in applied mathematics with a focus in EconCS (game theory) and a concurrent masters in statistics. In addition to running HMMT FNE, he is involved in the statistics club, quantitative trading club, and is a teaching fellow for the introductory probability course. For fun, he likes to scuba dive and watch comedy shows.

Location: Harvard Hall 101

Time: 1:00 – 1:50 PM

HMMT November 2026

Sunday Education Events

Sunday, November 8, 2026 · Harvard University

Time (EST)	Harvard Hall 101	Harvard Hall 202
8:00–8:50 AM	**Breakfast** · Boylston Hall, Ticknor Lounge	
9:00–9:50 AM	**Scott Sheffield** — Martingales and the Optional Stopping Theorem	**L. Mahadevan** — Mathematics as Metaphor
10:00–10:50 AM	**Michael Sipser** — Beyond Computation: The P vs. NP Question	**Noam Elkies** — Perspectives on a Pythagorean parametrization
11:00–11:50 AM	**Eli Luberoff** · Who's Doing the Thinking? **Emerson 210 (Keynote Speaker)**	
12:00–12:50 PM	**Lunch** · Boylston Hall, Ticknor Lounge	
1:00–1:50 PM	**Undergrad Panel** — Continuing Your Math Journey in College	**Zhening "Zed" Li** — Self-Reference in Logic and Computation

Scott Sheffield

Martingales and the Optional Stopping Theorem



Martingales are random processes with certain special properties. They arise naturally in finance, politics, sports, gambling, and many areas of science and engineering. Under certain efficiency assumptions, they can be used to model the probabilities of unusual outcomes, like epic comebacks in sports and politics. I'll give an accessible and lighthearted overview of the fascinating theory involved.

*Scott Sheffield is the **Leighton Faculty Professor of Mathematics** as of July 2017. He joined the MIT faculty as Professor in 2008, following a faculty appointment at the Courant Institute at NYU. He received a PhD in mathematics from Stanford University in 2003 under the supervision of Amir Dembo. Sheffield is a probability theorist, working on geometrical questions that arise in such areas as statistical physics, game theory and metric spaces, as well as long-standing problems in percolation theory.*

Location: Harvard Hall 101

Time: 9:00 – 9:50 AM

Zhening "Zed" Li

Self-Reference in Logic and Computation



Self-reference produced paradoxes that broke early attempts to formalize mathematics and computation. We will use self-reference ("diagonalization") to engineer contradictions within early formal systems. We also use diagonalization to prove the undecidability of general program properties (e.g. the Halting Problem) and Godel's incompleteness theorem, illustrating that any sufficiently expressive foundation limits what it can compute and prove.

*Zed is a **second-year PhD student at MIT CSAIL** advised by Prof. Armando Solar-Lezama. His research explores machine learning and formal methods for math and science, as well as programming frameworks for LLM-based agents. He earned his undergraduate and MEng degrees at MIT and is supported by the MIT Presidential Fellowship.*

Location: Harvard Hall 202

Time: 1:00 – 1:50 PM

Eli Luberoff

Keynote Speaker

Who's Doing the Thinking?



The relationship between humans and computers has dramatically changed in our lifetimes, and is in the midst of perhaps the most fundamental shift yet. What role should AI play in your education and beyond? And what pitfalls should you be aware of? More than ever, it's important to think about how we use technology to learn, communicate, and unleash the power of our minds. In this session, we'll look at the ways that we can use technology to think with us, not for us.

***Desmos founder** Eli Luberoff's two dueling loves are learning and programming. He combines those loves in Desmos Studio, a Public Benefit Corporation with the goal of helping everyone learn math, love math, and grow with math. When not glued to his computer, Eli blows off steam by playing piano or kicking around a soccer ball, both mostly at random.*

Location: Emerson 210

Time: 11:00 – 11:50 AM

L. Mahadevan

Mathematics as Metaphor



Mathematics is the language of all things quantitative and quantifiable, and thus ever more relevant in our increasingly complex, quantitative society. Using a series of examples, I will illustrate the development and evolution of this language in the analysis, prediction and synthesis of disparate phenomena, initially in the physical sciences and technology, and increasingly looking towards the life and social sciences.

*L. Mahadevan is **Lola England de Valpine Professor of Applied Mathematics and Professor of Organismic and Evolutionary Biology, and of Physics, at Harvard University**. Mahadevan is a cross-disciplinary scientist who seeks to understand motion and matter at the human scale integrating the physical and biological sciences, mathematics and engineering, and using experiments, theory and computation. He is a MacArthur Fellow and a Fellow of the Royal Society of London.*

Location: Harvard Hall 202

Time: 9:00 – 9:50 AM

Michael Sipser

Beyond Computation: The P vs. NP Question



What are the theoretical limitations of computer power? While computers can quickly multiply numbers with thousands of digits, factoring them seems to take millennia. Whether a faster method exists remains unknown. In a remarkable 1956 letter to John von Neumann, the great logician Kurt Gödel raised questions that lie at the heart of P versus NP, one of the most important unanswered questions in mathematics and theoretical computer science. In this talk, we will explore the question, its history, its practical implications for cryptography and other fields, and prospects for the future.

*Michael Sipser is the **Donner Professor of Mathematics at MIT** and a member of the Computer Science and Artificial Intelligence Laboratory. His research focuses on algorithms and computational complexity theory. He is the author of the widely used textbook Introduction to the Theory of Computation and a Fellow of the American Academy of Arts and Sciences.*

Location: Harvard Hall 101

Time: 10:00 – 10:50 AM

Noam Elkies

Perspectives on a Pythagorean Parametrization



On the recent occasion of the final Pythagorean day of the century (whether written 24/10/26 or 10/24/26), we reconsider the classical formula for parameterizing all Pythagorean triples, exploring it from various mathematical points of view, starting from the elementary – integer factorization, trigonometry, complex numbers – and ending with hints of more advanced connections and extensions.

*Noam Elkies is a **Professor of Mathematics at Harvard**, known for his work in number theory and elliptic curves. A child prodigy, he won gold at the 1981 International Mathematical Olympiad and became the youngest tenured professor at Harvard University at age 26. Elkies is also known for disproving Euler's Sum of Powers Conjecture, a 200-year-old mathematical theory. Outside mathematics, he is known as a pianist and composer — try Googling "Elkies piano improvisations" — and as a solver and creator of chess problems (even winning the world solving championship in 1996).*

Location: Harvard Hall 202

Time: 10:00 – 10:50 AM